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CENTRAL INTELLIGENCE AGENCY

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SUBJECT	1. Maintenance Work on MiG-17's at Jueterbog Airfield 2. Technical Information on the MiG-17	DATE DISTR.	28 February 1957
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SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

On 15, 16, and 17 November 1956, work on jet engines was performed in hangars 4, 5, 9, and 10 at Jueterbog airfield. New engines, some of which had previously been tested at the test stands, were installed in MiG-17s. Recently, the engines arrived in two boxes, including one 3.5 to 4 x 2.5 x 2.5-meter box with the engine and one 3.5 x 1.5 x 1.5-meter box with the exhaust pipe. Both boxes were painted a blue-grey color.

1. All engines were dismounted, provided they had not been exchanged for some reason shortly beforehand. Two or three engines at the most could daily be removed from MiG-17s. Work on one aircraft had to be completed before the beginning of work on the next aircraft. Two to 2½ hours were required to remove the engines and all work was done slowly and with great exactitude by two officers giving directions to 6 or 7 men. Some of the personnel were sitting on the aircraft, while others were busy opening flaps under the fuselage. Especially noted was a 30 x 30-cm opening on the starboard side on the upper side of the fuselage, directly behind the disassembly joint of the removable portion of the rear fuselage covering. The edges of the opening were slightly rounded. The disassembly joint of the covering was located about 30 cm behind the cockpit.[1]

   The following equipment was used for the removal of the engines:
   1 crane truck on 4 small iron wheels. A chain with a hook suspended at the overhang beam of the crane and catching an eye on the engine was operated by means of a winch.[2]
   1 cart with 2 supports fitted to the lower fuselage and padded with leather.[3]
   2 jacks, each placed under one of the wings.[4]

   The beams were of a simple but solid construction with a leather-upholstered supporting cross beam. The removable rear portion of the fuselage covering, together with the rudder unit, was placed on the cart and set aside. The removal of the stern lasted for about 15 minutes. The front portion of the MiG-17 was supported by the nosewheel landing gear and by the two jacks under the wings. After disconnection of the cables by the 6 or 7 men and after many, not further identified manipulations, the engine was removed from the aircraft. About 2 meters of the exhaust pipe were removed, after which the

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engine, with the remaining about 60 cm of exhaust pipe, was lifted toward the back by means of the crane and placed on the truck. The truck was fitted with leather-lined supports, similar to those on the cart, to carry the rear fuselage covering.

At this work the men were assisted by the officers. The engines had a conical form with the largest diameter at about the front third of the 9 combustion chambers. The form of the MiG-17 engines was similar to that of the MiG-15s; engines of the two-seater MiG-15s, however, were not installed in MiG-17s or vice versa. After taking off the rear portion of the fuselage cover, it could be seen that the point of largest diameter of the engine was located approximately at the disassembly joint of the fuselage. No parts protruded at the disassembly joint after removal of the engine.

2. The dismounted engines were transported by truck to the former Air Technical School or directly to test stand 105 (material). One man in overalls rode on the truck and one officer next to the driver, both belonging to the personnel of the former Air Technical School, accompanied the engine. Test stand 105 was closed in by a back and a front gate which closed behind the truck. The back gate was opened during the test run and a sloping concrete wall served to draw off the jet radiation because the Jueterbog-Treuenbrietzen railroad line ran behind the test stand. A three-axle truck (tank truck) was invariably standing next to the test stand. Fitting into the test stand of the engine lasted for approximately 1 or 1½ hours; that is, the test runs started 1 or 1½ hours after the arrival of the engine. Details of the fitting could not be observed. Each engine was in operation for about 40 minutes. For about 10 minutes, a soft whistling sound could be heard; after that the engines ran at normal revolutions, were stopped for approximately 5 minutes while again whistling, were then put on high speed with a thundering noise and were turned off again after softly whistling for about 5 more minutes. About 1 or 1½ hours after the test run the engine was removed and transported to the aircraft or to the former Air Technical School. No engine was completely turned off while being tested. The transport of the engine from the test stand to the hangars or to the school was again performed by means of trucks.

3. The engines were installed in the same aircraft after returning to the hangars. In case an engine had been carried to the Air Technical School, another engine, taken from 3.5 to 4 x 2.5 x 2.5-meter crates, was installed in the aircraft. These engine crates, as well as 3.5 x 1.5 x 1.5-meter crates containing exhaust pipes, had arrived by rail on 6 December 1956 (1 crate) and about 2 weeks prior to that date (6 engine and 6 exhaust pipe crates). From the railroad cars, the crates were hauled to the former Air Technical School where they were possibly tested before coming to depot 71 (base material). Before the engines were installed in the aircraft, the crates were again transported to the Air Technical School and from there to the hangars. The crates with the exhuast pipes came directly from depot 71 to hangar 4. Installation of the engine lasted for about 1½ hours. By means

of a crane, the engines were lifted from the trucks and carefully moved from behind into the fuselage. This work called for about 8 or 9 men, including the officers. No test runs took place after the installation of the engine, and trial flights were performed on the next day or on the afternoon of the same day at the earliest.

4. Electricians, armorers and "specialists" for target installations were working on the front portion of the aircraft, including the wings and the cockpit, under the supervision of a technical officer, while the engine was being tested. All aircraft were checked by the same men with the help of 1 to 3 more men. During examination of the landing gear, the jacks were lifted a little further and an additional jack was placed near the nose landing gear. The additional jack had a broad support adapted to the form of the under portion of the fuselage. During check-up, a small battery car was connected with a small generator which ran only when the engine was installed in the aircraft. Time needed for check-ups greatly varied from 1 day to 3 days [redacted] and 8 days [redacted]

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5. One 37-cm cannon and 2 about 2-cm machine guns were dismounted from each MiG-17 and shipped to the armory. Dismounting of the weapons from different aircraft was performed by the same persons. Three men were needed to transport the cannon by means of a truck. Only 2 officers were engaged in work on the "neon pipe" at the upper side of the fuselage in front of the cockpit. Details could not be observed.[5]

6. The normal technical personnel were employed for checking, while persons from the technical school were occasionally employed in connection with the engines. During the period of the check-ups, flying personnel took part in many instruction courses and had much free time. Pilots could not be seen in the hangars.[6] Winter uniforms, consisting of padded coats, fur shoes and fur caps, had meanwhile been distributed.

7. The following observations were made between 14 November and 7 December 1956 in connection with MiG-17s parked in Hangar No. 4:

   a. A superstructure could be observed on the outside of the cockpit roof at the front edge of the removeable part. This superstructure was slightly sloping to the front; the back part was fitted with a frosted-glass plate or a fine-meshed, light-colored screen. The structure could be pushed backwards together with the moveable part of the roof of the cockpit.[7]

   b. Eight wires or cables extending parallel to the direction of flight were observed under the moveable portion of the cockpit roof within the cockpit. There were two sets of four wires or cables each. The wires had a diameter of about 8 mm. The sets of wire were located on both sides of the cockpit, above the pilot. Each set of four wires was attached to a small "socket" fastened to the inner sides of the cockpit. When the roof of the cockpit was opened, the wires were pushed backwards, leading to the assumption that they must be fastened directly under the roof.[8]

c. A box with a "lens" of about 5-cm diameter was placed on the black box ("socket") directly level with the face of the pilot and thus hindering his sight toward the front. The "lens" faced the pilot. The box had a height of about 20 cm, a width of about 15 cm and was about 15 cm deep. A commercial sign, Zeiss Ikon, could be seen on the port side of the box. The box with the lens could only be observed in MiG-17s and not in two-seater aircraft. An approximately 8 x 8-cm rear-view mirror, presumably for the second pilot, was located at the right front side of the front pilot in two-seater aircraft.[9]

d. Small additions resembling ear pads in railroad cars have recently been observed on both sides of the pilot's headrest. These pads surrounded the pilot's ears so that he was free to move his head in any direction and thus maintain enough side view.

e. A sort of neon tube was located on the upper side of the fuselage in front of the cockpit. These tubes were observed on all aircraft in hangar No. 4; it could not be determined, however, whether or not aircraft in other hangars had the same tubes. Two-seater aircraft did not have this tube. Prior to the "exchange" of aircraft [redacted] 25X1
[redacted] these tubes at the front upper side of the fuselage did not 25X1
exist, and it is possible that they were installed during the temporary absence of the MiG-17s as the tubes could be observed after the return of the aircraft. The tubes had a length of about 40 cm, a diameter of about 5 cm and were painted red or grey. The surface of the fuselage on which the tube was mounted had lighter paint than the rest of the fuselage. Aircraft [redacted] was the only aircraft to 25X1
have a grey tube.[11]

f. Rectangular instruments with checkerboard-like divisions could not be observed at the pilot's seat in the cockpit.[10]

g. The front wheels of the MiG-17s were smaller than the wheels of the main landing gear. While changing tires, ball bearings were seen at the hub, in the vicinity of which there was also the valve not previously observed. The inscription KPKP 380 x 1600 was seen on the side of a tire of the main landing gear.

h. The auxiliary tanks were supported by 2 struts, the ends of which pressed against the lower side of the wings or were gripping especially provided notches or slits in order to prevent the slipping or shaking of the auxiliary fuel tanks. A screwed joint as reinforcement and fuel pipe was attached in the middle of the tanks. An opening for refueling was located in the upper side in front of the fuel tanks.[12]

i. No differences in the jet outlet and no installations to change the cross section could be observed. The exhaust pipe protruded about 20 cm above the silvery fuselage covering while they were visible for only a few cm on the MiG-15s. It was possible to sketch the inside of the jet outlet.[13]

j. An eight-piece shutter about 8 cm wide with upper sections folding over the lower sections was located about 10 cm behind the airbrake. After landing, the silvery shining portion of the fuselage covering and occasionally even the shutter were blackened.

Immediately after landing, the sooting was carefully wiped off. After the stern had been taken off, small slits could be perceived at the location of the exhaust pipe, level with the shutter.[14]

Silvery shining cables of a diameter of about 1 cm were seen between fuselage covering and exhaust when the brake flaps were opened. A main coming from the front led into a distribution box from which two cables led into the exhaust pipe. A total of 4 such conducting lines, presumably serving as fuel pipes, could only be observed, before the stern had been dismantled.[15]

k. A calibration of up to 30 volts was observed on the scale of an Opel-type starter.

[redacted] Comments: 25X1

1. See Annex 1, sketch 1. Such an opening is also located at the corresponding point on the port side of the fuselage.

2. See Annex 2, sketch 2.

3. See Annex 3, sketch 3 and 4.

4. See Annex 3, sketch 5.

5. Compare paragraph 7, subsection e.

6. This is overhaul work on aircraft after the completion of fall exercises. These overhauls are regularly performed in November/December of each year.

7. See Annex 7, sketch 12 to 14.

8. See Annex 7, sketch 12 to 14. The structure is believed to be a rear-view mirror.

9. See Annex 7, sketch 12. The target gun-sight not installed in trainers is presumably the instrument observed.

10. This is in connection with horizontal high-altitude bombing from single-jet aircraft.

11. See Annex 8, sketch 15 and 16. This tube-like structure has been reported elsewhere as having been seen at the lifted front section of the fuselage and it had incorrectly been assumed that the tube was located under the flap. The structural outside had been compared with frosted glass and a cable extending under the tube had been mentioned. The structure can be recognized on the photographs of MiG-17s [redacted] 25X1

12. See Annex 6, sketch 10 and 11.

13. See Annex 5, sketch 9.

14. See Annex 4, sketch 6. The sooting of the fuselage points toward reversal of jet propulsion as an additional brake installation which is possibly also connected with the shutter.

15. See Annex 4, sketch 6 and 7. This is possibly the fuel pipe of the afterburner.

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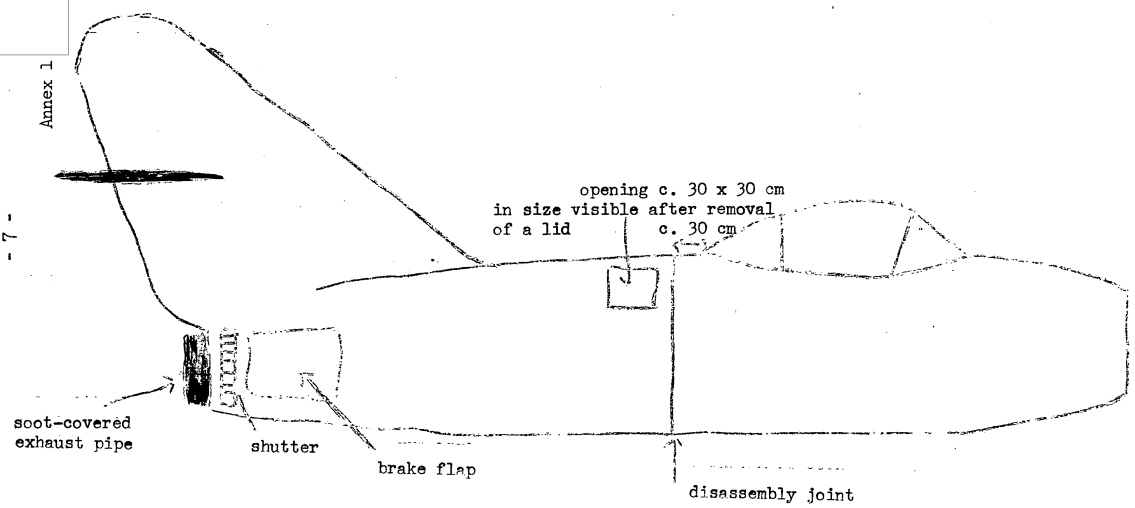
Annex 1

Sketch 1:

Contour of the MiG-17



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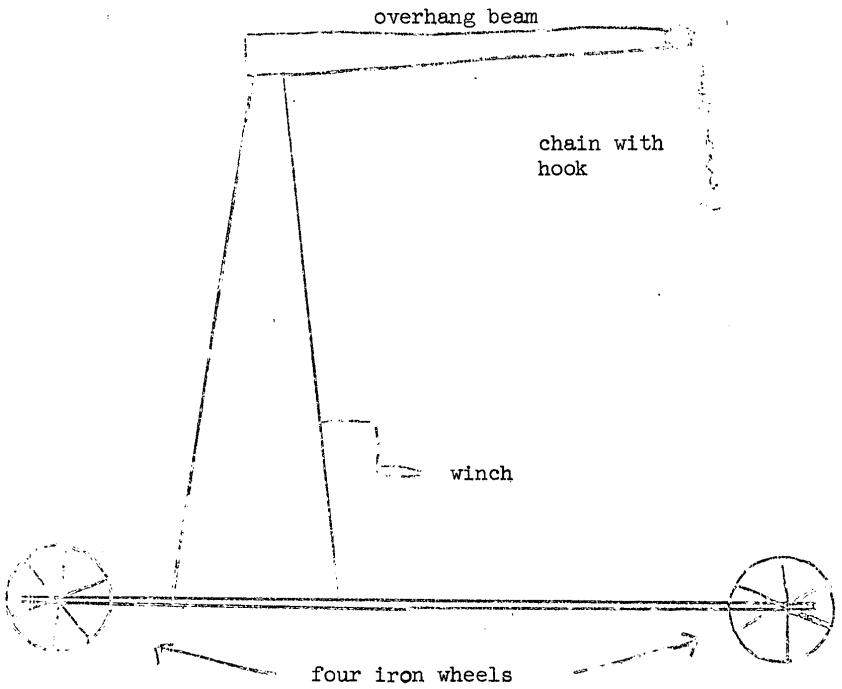
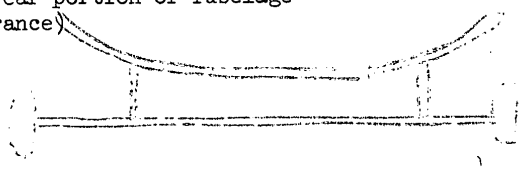
Sketch 2:

Approximate appearance of crane truck

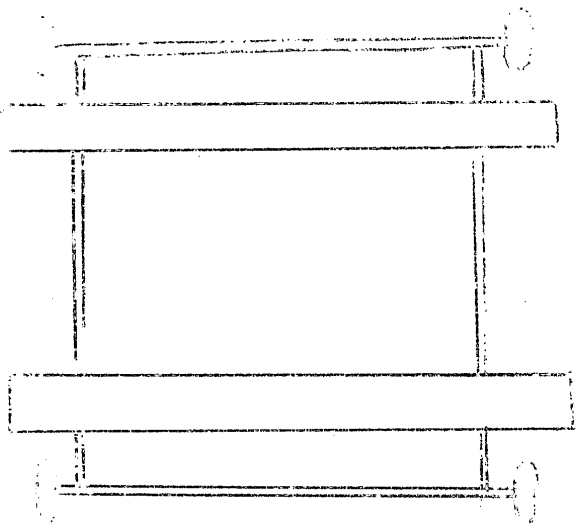


Annex 3

Cart to transport rear portion of fuselage
(approximate appearance)

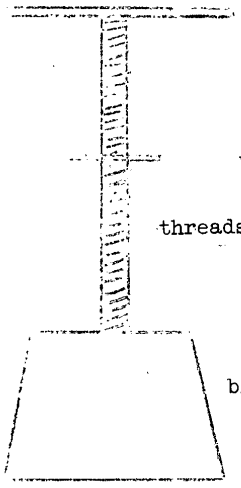


Sketch 3: front view



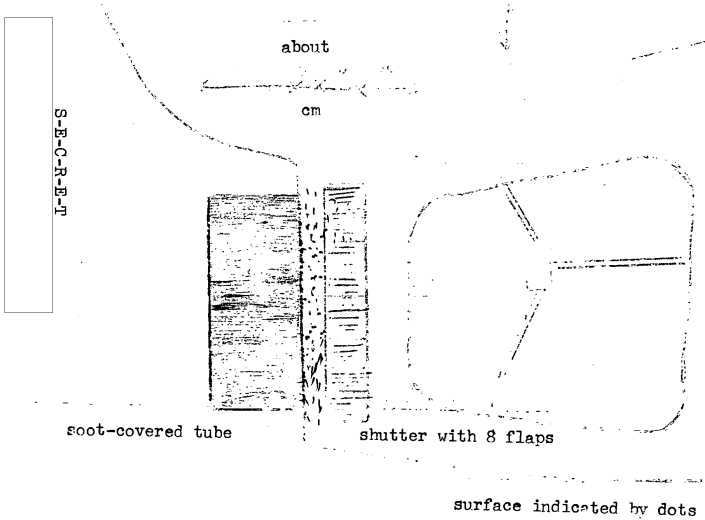
Sketch 4: as seen from above

Sketch 5: Jack (under the wings)



Sketch 6:

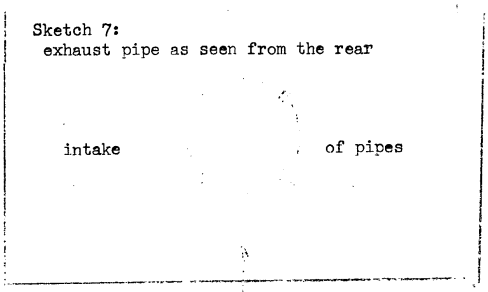
Stern of MiG-17



visible behind the brake flaps:
silvery-shining pipes
diameter c. 1 cm.

surface indicated by dots is wiped off immediately after landing

Sketch 7:
exhaust pipe as seen from the rear



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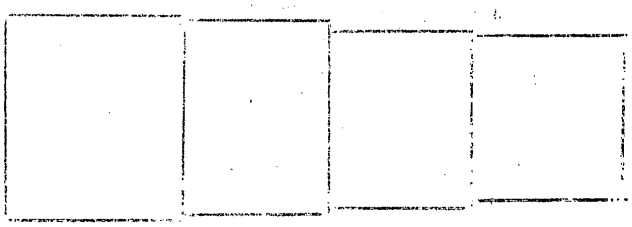
Sketch 8: side view of removable exhaust pipe.



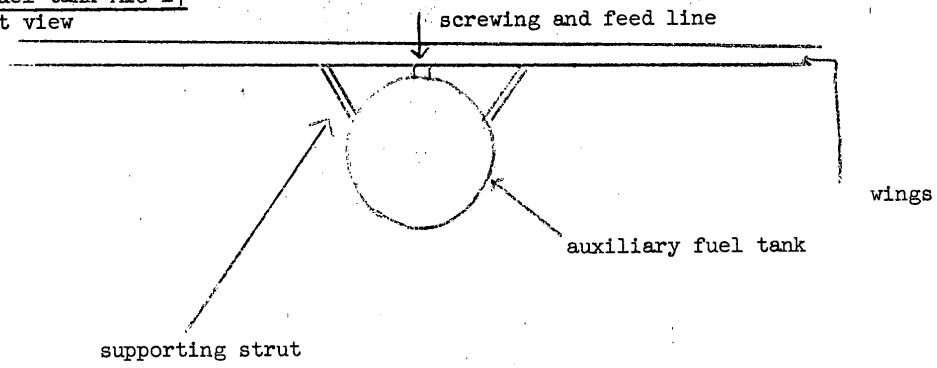
back

Length at least 2 meters, tapering off toward the end.

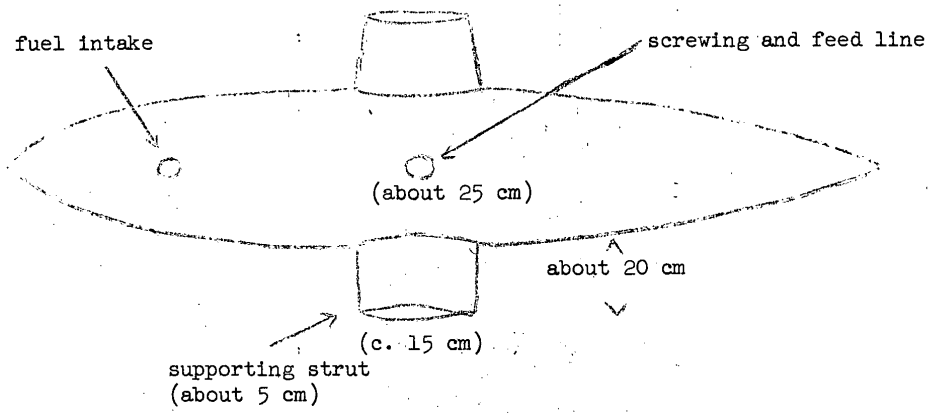
Sketch 9: view of exhaust pipe as seen from the rear.

Auxiliary fuel tank MiG-17

Sketch 10: front view

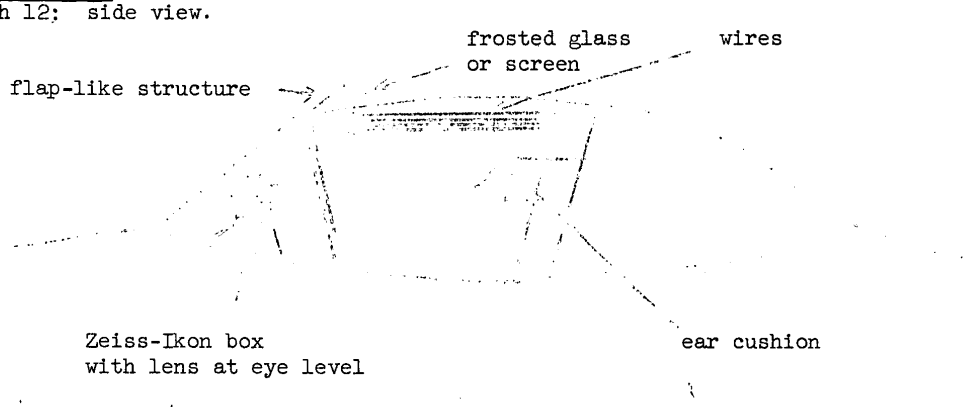


Sketch 11: as seen from above

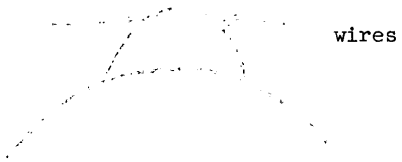


Cockpit MiG-17

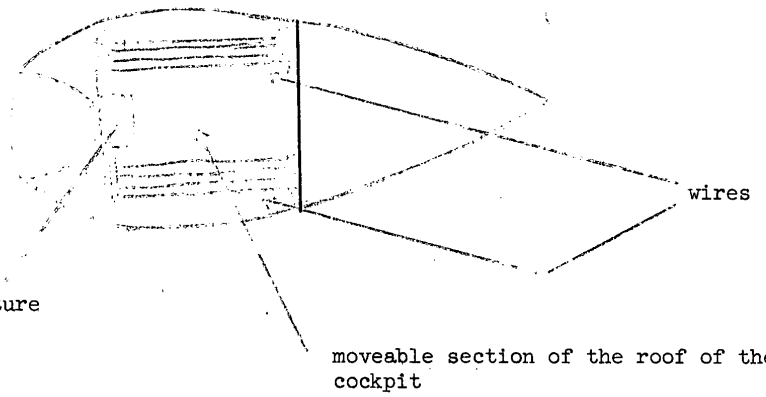
Sketch 12: side view.



Sketch 13: front view



Sketch 14: as seen from above



Sketch 15: Side view

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Sketch 16 as seen from above

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Neon-tube-type structure at the upper side of the MiG-17 fuselage

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